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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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PARKHURST WENDEL & BURR
SUITE 210
1421 PRINCE STREET
ALEXANDRIA, VA 22314

EXAMINER

TRAN, HIEN THI

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

08/857,585

Applicant(s)

ABE ET AL.

Examiner

Hien Tran

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,5,6,12,14-16 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3 and 5-612 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 3, 5-6, 12, 14-16 18-21 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 15 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, the limitation of “is not poisoned by water ...” is nowhere disclosed in the original specification.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1764

5. The art area applicable to the instant invention is that of heater/adsorber/catalytic converter.

One of ordinary skill in this art is considered to have at least a B.S. degree, with additional education in the field and at least 5 years practical experience working in the art; is aware of the state of the art as shown by the references of record, to include those cited by applicants and the examiner (*ESSO Research & Engineering V Kahn & Co*, 183 USPQ 582 1974) and who is presumed to know something about the art apart from what references alone teach (*In re Bode*, 193 USPQ 12, (16) CCPA 1977); and who is motivated by economics to depart from the prior art to reduce costs consistent with the desired product characteristics. *In re Clinton* 188 USPQ 365, 367 (CCPA 1976) and *In re Thompson* 192 USPQ 275, 277 (CCPA 1976).

6. Claims 3, 5-6, 12, 14-16, 18, 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the translation of Hei 2-56247 in view of Eberly, Jr. et al (3,591,488) and Swaroop et al (5,447,694).

In the pending application, applicants claim a composition comprising a high silica zeolite having a Si/Al ratio of not less than 40, and a heat resistant oxide, wherein the heat resistant oxide is loaded with a noble metal. Applicants further claim an adsorbent comprising a honeycomb structure coated with a heat resistant oxide loaded with a noble metal.

The translation of Hei 2-56247 teaches a composition for automobile exhaust gas treatment comprising a zeolite and a heat resistant oxide in the form of alumina. The Hei 2-56247 translation also discloses that a noble metal in the form of Pt is loaded on alumina. For

Art Unit: 1764

example, see page 3, lines 7-13. The translation of Hei 2-56247 also discloses that the support is a ceramic cordierite honeycomb carrier. In addition, the support is coated with a heat resistant oxide in the form of alumina. For example, see page 3, lines 6-7.

The translation succeeds in teaching applicants' claimed zeolite component and heat resistant oxide component, other than zeolite, loaded with a noble metal in the form of alumina loaded with Pt. Furthermore, Hei 2-56247 also succeeds in teaching applicants' honeycomb shaped support. In addition, the translation of Hei 2-56247 is considered to encompass applicants' alkali metal content of 0.1% by weight or less because "less" is considered to encompass 0%.

Several differences are noted between the applied art of the Hei 2-56247 translation and applicants' claimed invention. The Hei 2-56247 translation is silent about the Si/Al ratio in the zeolite. In addition, the modified teachings of Hei 2-56247 are silent as to whether the structure may not be poisoned by the water in the exhaust. The reference is silent about the BET specific surface area of the zeolite.

The reference of Eberly, Jr. et al is cited for the general teaching that it is known in the art that zeolites with that high silica/alumina ratios, such as greater than 50, are desirable for high temperature conversions because they display increased thermal stability. For example, see column 2, lines 41-45 and column 5, lines 2-5.

The reference of Swaroop et al is cited to illustrate that zeolites with specific BET surface areas within applicants' claimed range are suitable for use in exhaust gas treatment. See abstract, column 5, lines 20-30 and Fig 1.

Art Unit: 1764

Since it is desirable for compositions to be thermally stable for exhaust gas treatment process due to the high temperatures involved, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select a zeolite with a high silica/alumina ratio as taught by Eberly, Jr. et al in the exhaust gas composition disclosed by the translation of Hei 2-56247 because it is known in the art that zeolites with a high silica/alumina ratio display increased thermal stability.

It would have been obvious to one of ordinary skill in the art at the time the invention was made that the catalyst produced by the modified teachings of Hei 2-56247 would possess similar resistance to water poisoning because it contains similar components to applicants' claimed composition. Similar compositions are considered to have similar physical properties.

In addition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ any proportion of components in the modified composition of Hei 2-56247, including the specific proportions of (a) and (b) claimed by applicants, because there is no invention where the difference in proportions is not critical and was ascertained by routine experimentation since the determination of workable ranges is not considered to be inventive. *In re Swain and Adams*, 70 USPQ 412 (CCPA 1946).

Since the modified teachings of the translation of Hei 2-56247 do not limit the surface area of the zeolite, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a zeolite with a BET surface area in the range disclosed by Swaroop et al, because the reference of Swaroop et al illustrates that such BET surface areas are effective for exhaust gas treatment.

Art Unit: 1764

With respect to the newly added claim 20, the range of greater than 50 in Eberly, Jr. et al encompasses the instant claimed range of 40-1000.

With respect to the newly added claim 21, Eberly, Jr. et al discloses that the zeolite is ion-exchanged to produce an H type zeolite. See, for example, col. 10, lines 6-9.

7. Claims 3, 5, 6, 12, 14, 15, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over the translation of Hei 2-56247 in view of Inoue et al (5,223,236) and Swaroop et al (5,447,694).

In the pending application, applicants claim a composition comprising a high silica zeolite having a Si/Al ratio of not less than 40, and a heat resistant oxide, wherein the heat resistant oxide is loaded with a noble metal. Applicants further claim an adsorbent comprising a honeycomb structure coated with a heat resistant oxide loaded with a noble metal.

The translation of Hei 2-56247 teaches a composition for automobile exhaust gas treatment comprising a zeolite and a heat resistant oxide in the form of alumina. The abstract also discloses that a noble metal in the form of Pt is loaded on alumina. For example, see page 3, lines 7-13. The translation of Hei 2-56247 also discloses that the support is honeycomb shaped. In addition, the support is coated with a heat resistant oxide in the form of alumina. For example, see page 3, lines 6-7.

The translation of Hei 2-56247 succeeds in teaching appellants' claimed zeolite component and heat resistant oxide component, other than zeolite, loaded with a noble metal in the form of alumina loaded with Pt. Furthermore, translation of Hei 2-56247 also succeeds in teaching appellants' honeycomb shaped support.

Art Unit: 1764

Several differences are noted between the applied art of the Hei 2-56247 translation and appellants' claimed invention. The Hei 2-56247 translation is silent about the Si/Al ratio in the zeolite. In addition, the modified teachings of Hei 2-56247 are silent as to whether the structure may not be poisoned by the water in the exhaust. The reference is silent about the BET specific surface area of the zeolite.

The reference of Inoue et al teaches the use of a high silica zeolite with a silica/alumina ratio greater than 20 for exhaust gas conversion. See column 1, lines 53-56 and column 2, lines 7-10.

The reference of Swaroop et al is cited to illustrates that zeolites with specific BET surface areas within applicants' claimed range are suitable for use in exhaust gas treatment. See abstract, column 5, lines 20-30 and Fig 1.

Since the translation of Hei 2-56247 does not limit the silica/alumina ratio of the zeolite, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select any silica/alumina ratio greater than 20 (e.g. a ratio of 40) because the reference of Inoue et al teaches that any silica/alumina ratio greater than 20 is desirable for exhaust gas treatment. Applicants have not shown anything unexpected with respect to the claimed silica/alumina ratio.

It would have been obvious to one of ordinary skill in the art at the time the invention was made that the catalyst produced by the modified teachings of Hei 2-56247 would possess similar resistance to water poisoning because it contains similar components to applicants' claimed composition. Similar compositions are considered to have similar physical properties.

Art Unit: 1764

In addition, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ any proportion of components in the modified composition of Hei 2-56247, including the specific proportions of (a) and (b) claimed by applicants, because there is no invention where the difference in proportions is not critical and was ascertained by routine experimentation since the determination of workable ranges is not considered to be inventive. *In re Swain and Adams*, 70 USPQ 412 (CCPA 1946).

Since the modified teachings of the translation of Hei 2-56247 do not limit the surface area of the zeolite, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a zeolite with a BET surface area in the range disclosed by Swaroop et al, because the reference of Swaroop et al illustrates that such BET surface areas are effective for exhaust gas treatment.

Response to Arguments

8. Applicant's arguments filed 1/22/04 have been fully considered but they are not persuasive.

Applicants argue that the Table on page 3 of the Declaration shows the need to control both the Si/Al molar ratio and the alkali content to be assured that one has a necessary BET minimum value at a high temperature, such as 1100 °C while the prior art does not show any motivation to maintain such controls. Such contention is not persuasive as the range set forth in the Table on page 3 of the Declaration is not commensurate in scope with the range set forth in the instant claims.

Applicants argue that the Si/Al ratio in Swaroop et al is less than the minimum value of the instant claim. Such contention is not persuasive as Swaroop et al discloses that the Si/Al ratio

Art Unit: 1764

is no greater than 200 (col. 3, lines 28-37) which encompasses the range "not less than 40" of the instant claim. In any event, the references of Eberly, Jr. et al and Inoue et al are cited for the general teaching that it is known in the art that zeolites with that high silica/alumina ratios are desirable for high temperature conversions because they display increased thermal stability.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is (571) 272-1454. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hien Tran

HT
April 1, 2004

**Hien Tran
Primary Examiner
Art Unit 1764**